



National Climate Services Program

Andrew Stern

Director, Analyze, Forecast & Support (AFS) Office & Portfolio

Fiona Horsfall, Ph.D.

Chief, AFSO/Climate Services Branch

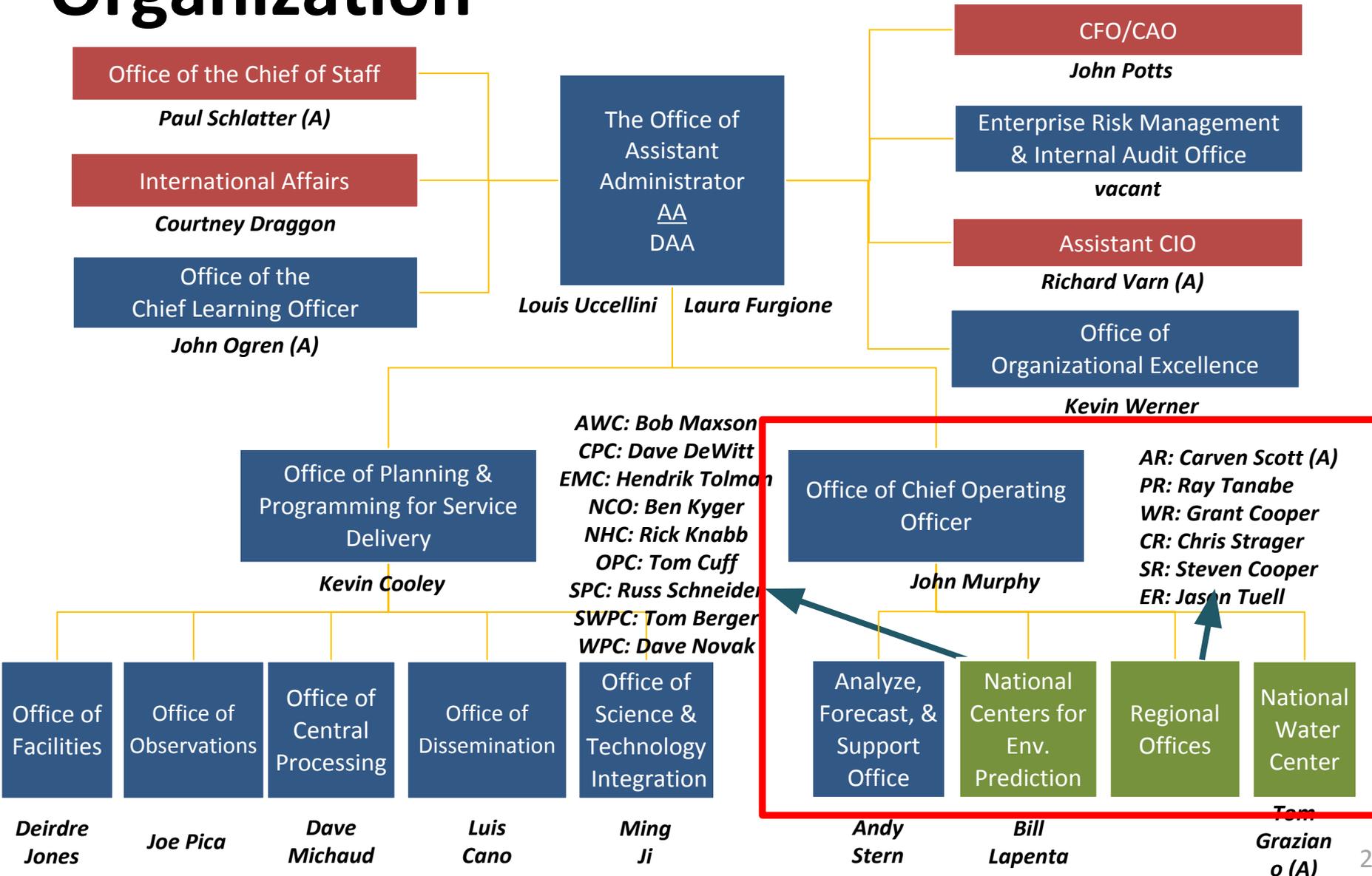
Presented by Marina Timofeyeva, Ph.D.

Climate Scientist, AFSO/Climate Services Branch

May 9th, 2016

NWS HQ & Field Organization

New HQ Office
Field Office
Existing HQ Office



Analyze, Forecast & Support Office



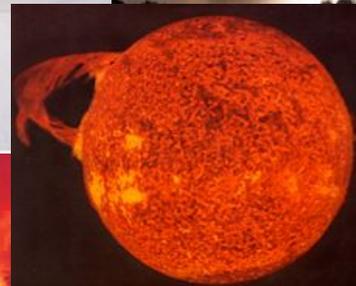
IDSS
NBM Demo
Impacts Catalog Demo
CaRDS Administration
National WCM
Ecological Support
Digital Policy
Short Range Analysis & Prediction

Home of the 11 National
Service Programs
Hazard Simplification
Arctic Team

**Home of the *Climate Services
Branch and Services Program
Team***

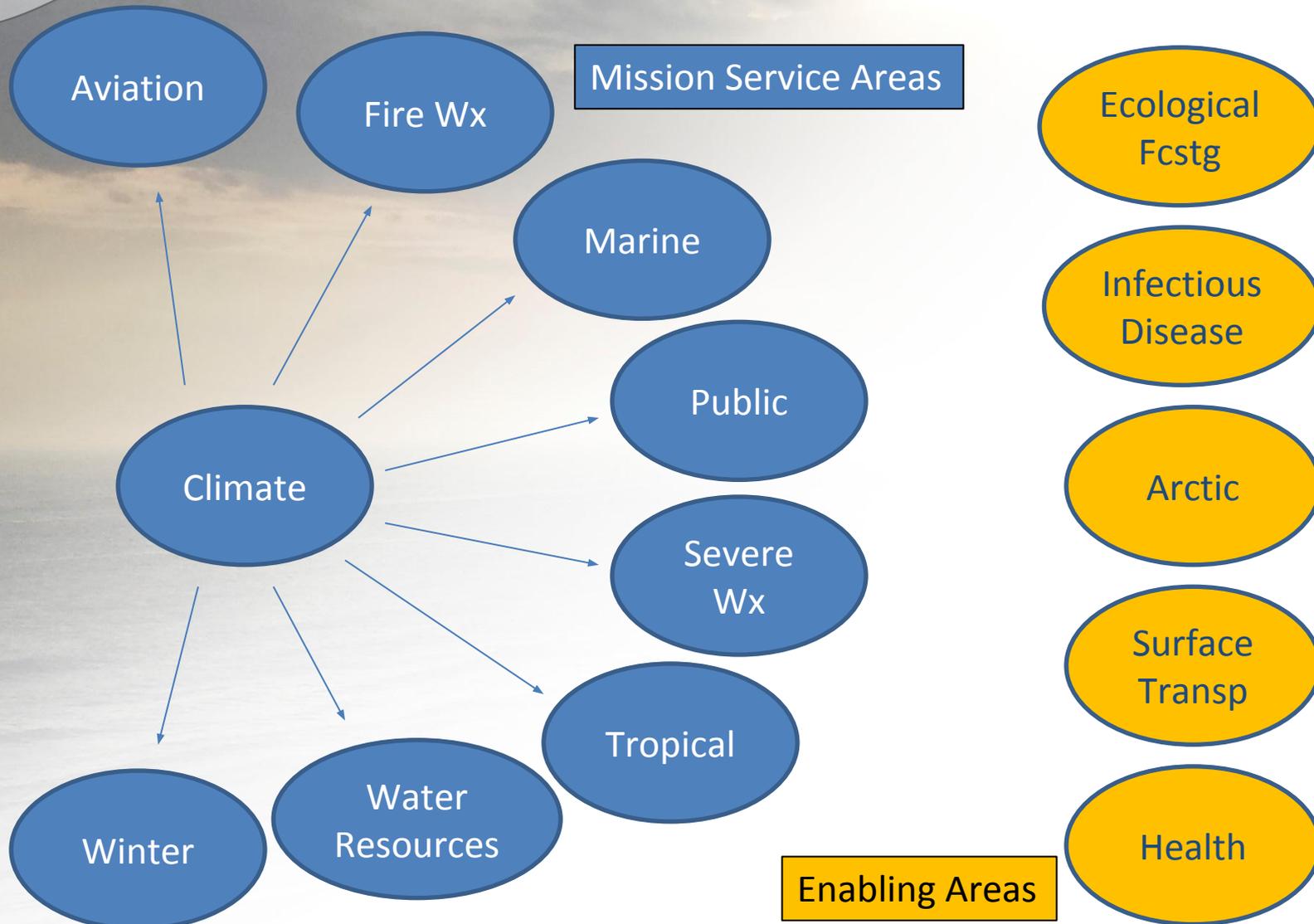
11 National Service Programs

- Aviation Weather
- Climate ←
- Fire Weather
- Hydrology/Water Resources
- Marine and Coastal
- Public Weather
- Severe Weather
- Space Weather
- Tropical Weather
- Tsunami
- Winter Weather

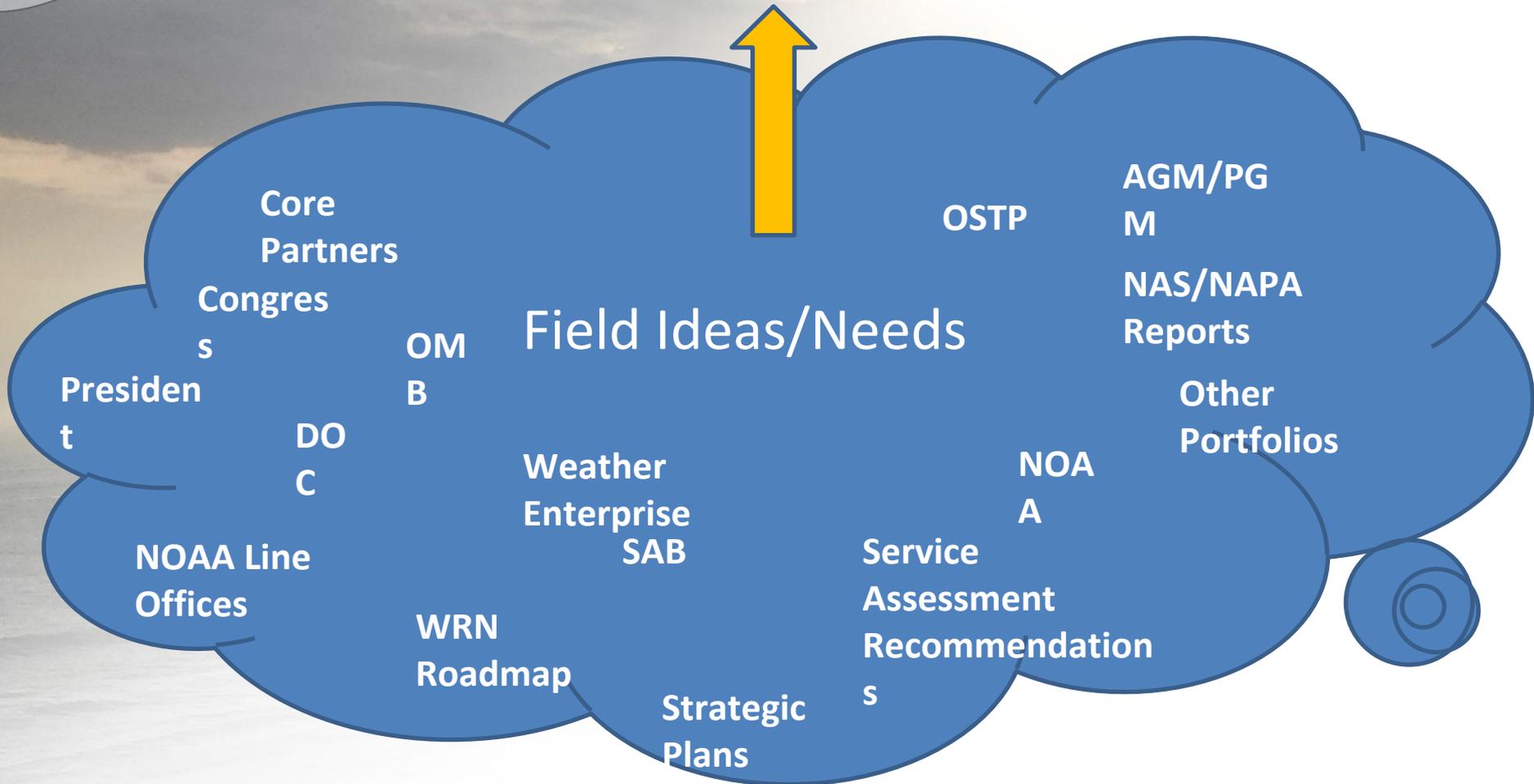


Climate Services are Cross-cutting!

Climate as Cross-cutting

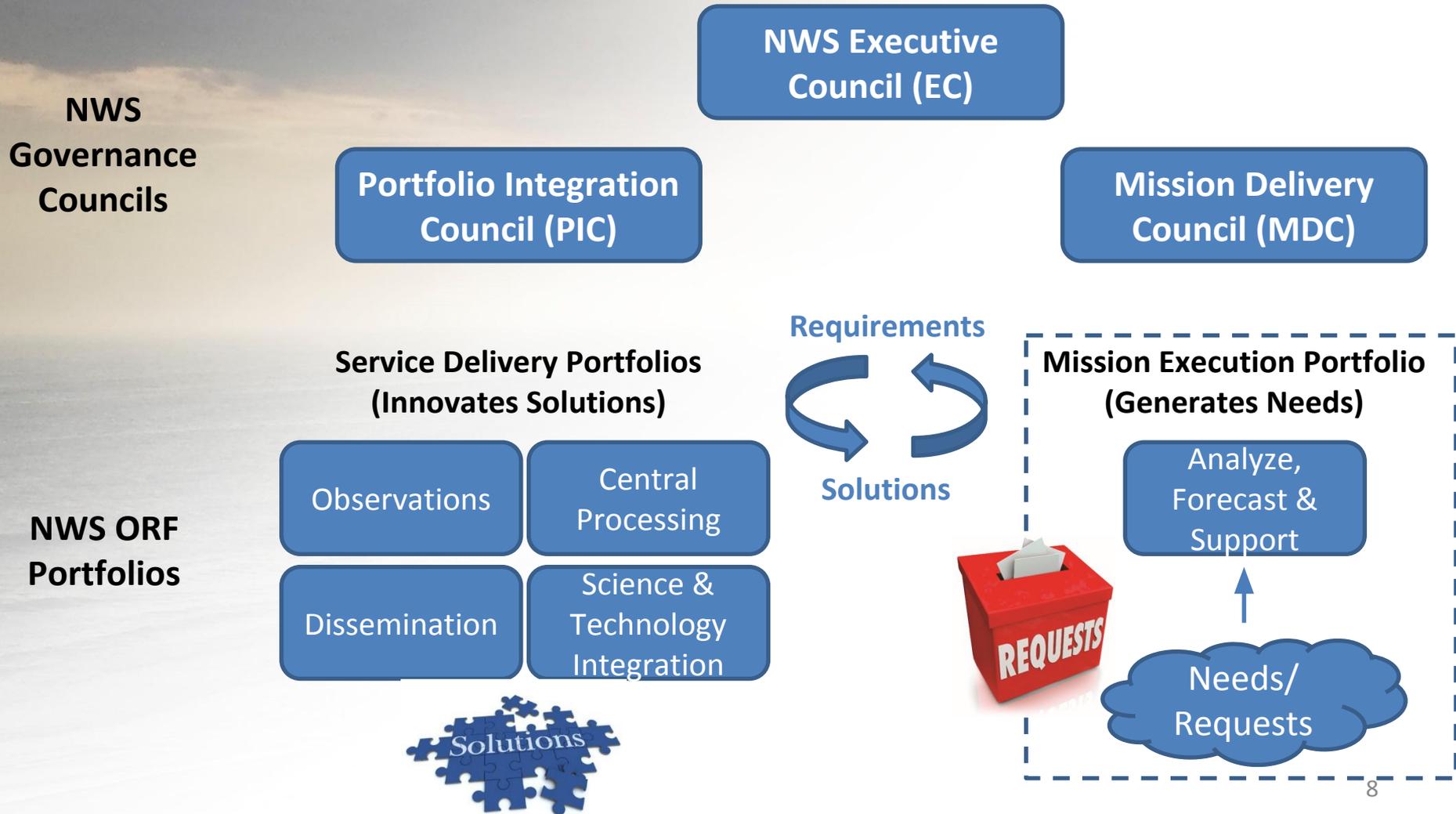


Requests can originate in many places



***But not all "ideas" equate to a validated requirement!
Requirements must be prioritized against finite resources***

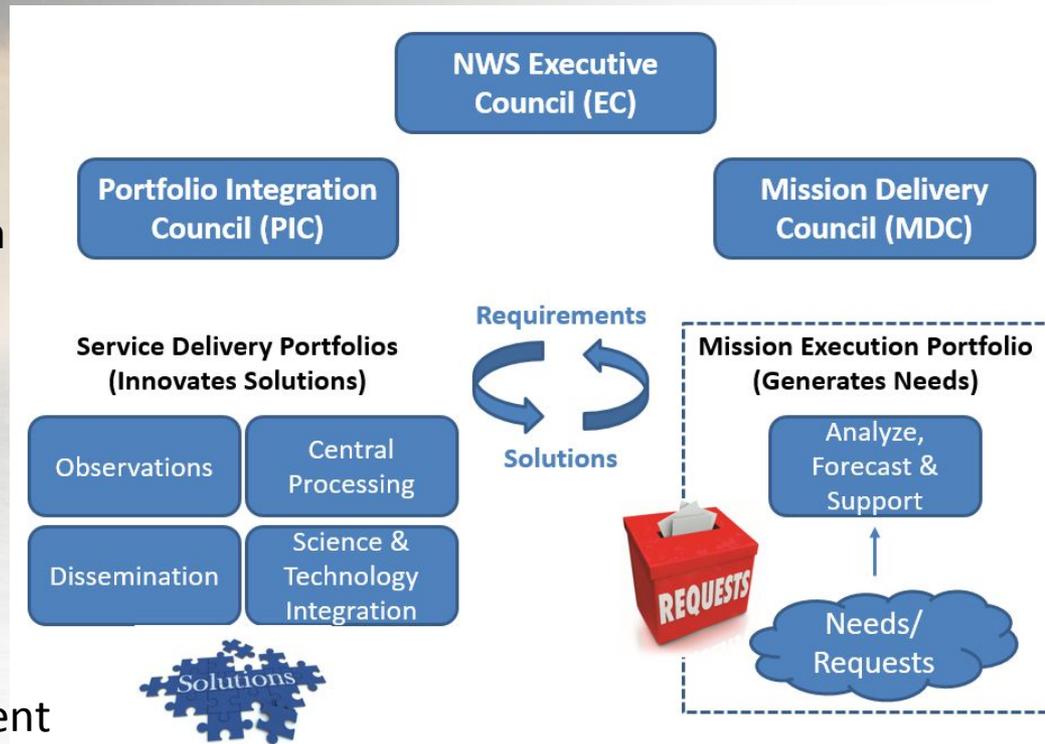
New NWS Governance & Field Requirements Validation Process (CaRDS)



Climate Example

Validated Requirement for
new Product sent to PIC

Link to Annual
Operating Plan



Review & Vote by
MDC

Review by AFS Dir

Review by PET
Vote by Climate SPT

Submit CaRDS form

Approval by MIC
Approval by Region

Transition to Operations



WFO Forecaster has a great
idea for a new climate product

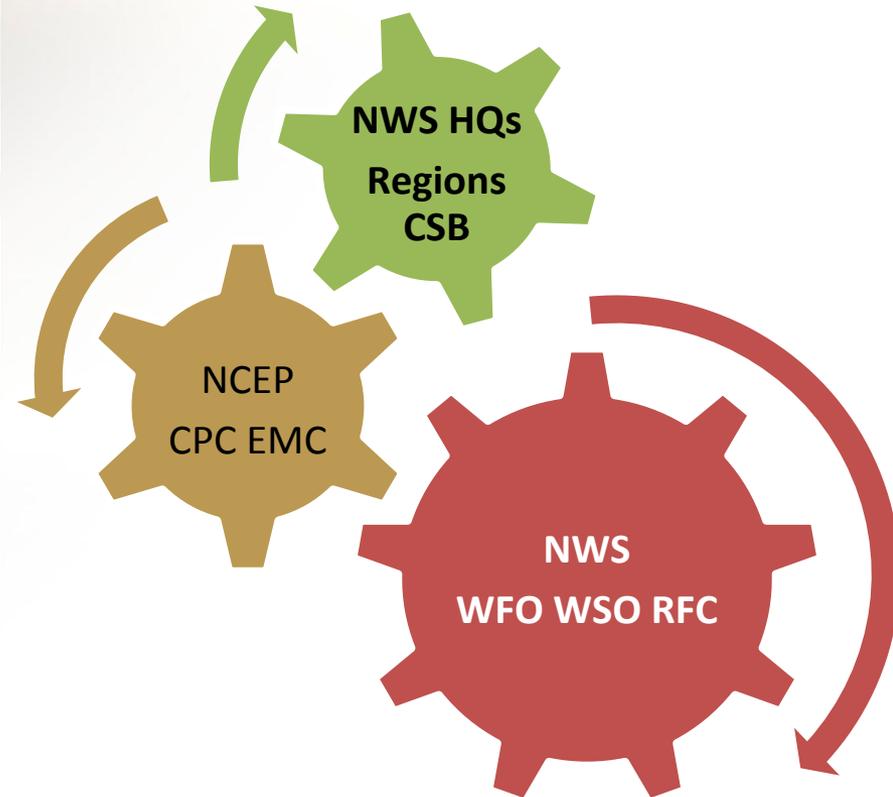
Climate Program – Looking Forward

- **Exciting Times Ahead for Climate Services**
 - Maturing a continuum of information
 - Increased computing capacity & new sensors (e.g., GOES R)
 - Filling in weather-climate gap time period
 - Improved ability to convey IDSS (Climate/Weather Linkage)
 - Impacts Catalog
 - Tools to show recurrence frequencies of extreme events
 - Ability to provide environmental data to core partners to enable their mission areas
 - Ecological Forecasting
 - Infectious Diseases
 - Human Health
 - Surface Transportation

NWS Climate Services Program

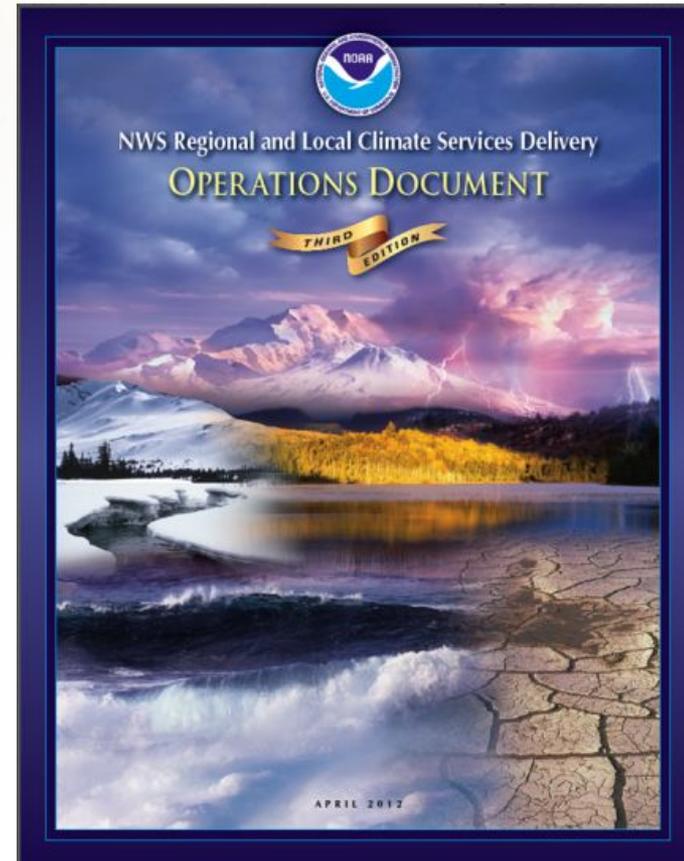
Deliver climate information for response and preparedness for seasonal to sub-seasonal timescales

- Climate data stewardship and services
- Monitoring, prediction, assessment, analysis, and diagnostics of the climate system
- Regional and local climate services through distributed service outlets
- Decision support, capacity building, and customer service



Climate Services Branch

- Coordinates NWS Climate Program in NWS and NOAA planning activities
- Coordinates NWS policy and requirements gathering
- Serves as the national coordinator for regional and local climate services
- Coordinates development of guidance for operational delivery of NWS climate services
- Coordinates development of policies and documents in support of climate services

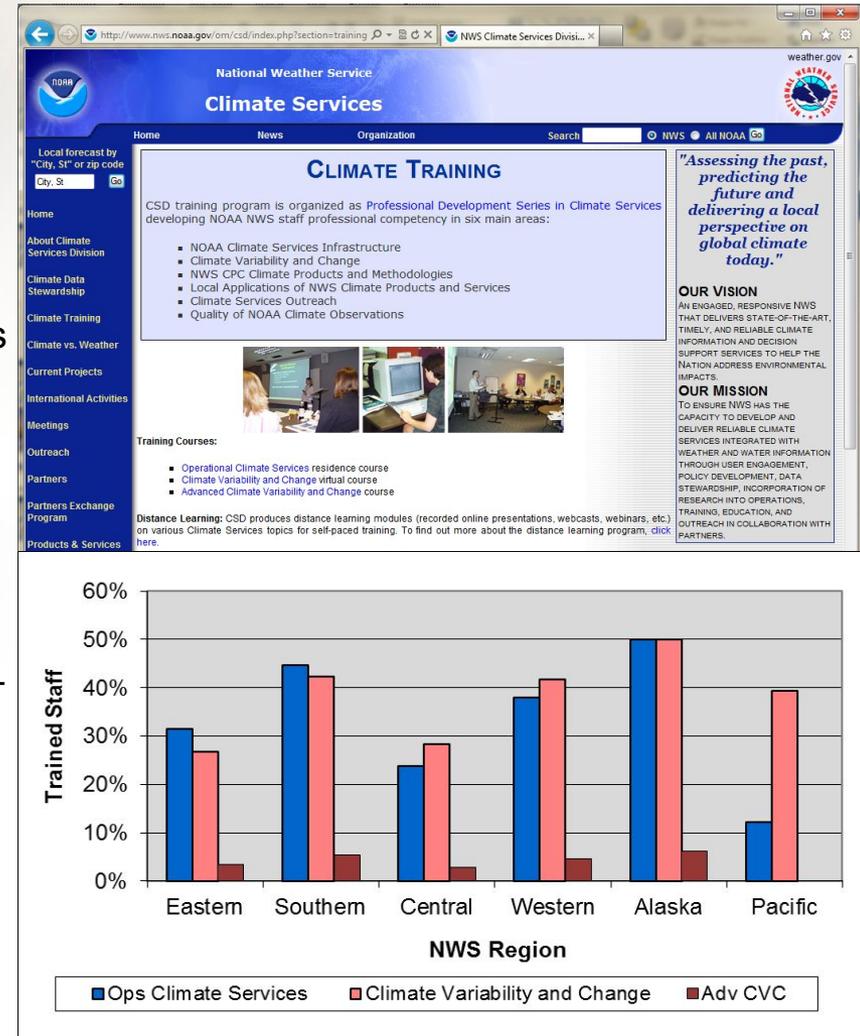


Building capacity within NWS staff

• Training

1. **30 hours online training**
 - Module updates and additions as needed
2. **Operational Climate Services Delivery**
 - Residence course offered at NWSTC, Kansas City
3. **Climate Variability and Change Virtual Course (CVCVC)**
 - In partnership with COMET
4. **Advanced Climate Variability and Change Course**
 - Residence course in partnership with COMET
5. **Technical training for national and international partners/users**

Training leveraged by CPO Staff
Climate.gov
Climate Resilience Toolkit - CRT

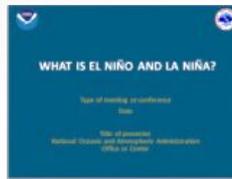


Building Capacity

- Climate Services Seminar Series
- Factsheets on a variety of climate topics
- Outreach



NWS Climate Outreach Google Site Provides a "one-stop-shop" for outreach material



Grab-and-go Climate Presentation Series (Under Development)

<http://www.nws.noaa.gov/os/csd/>



Supporting the Field

Tools – LCAT

- Local Climate Analysis Tool
- Uses
 - Local impacts of climate variability and change
 - Drought impacts and water resource management
 - Severe weather (beyond T_{avg} and P_{total})
 - Decision support
- CPO partnership
 - Linked to on Climate.gov
 - Contract support in FY16 for O&M, redesign, and development of capabilities for the Arctic

The screenshot shows the LCAT website interface. At the top, there are logos for NOAA and the National Weather Service, followed by the text "LCAT Local Climate Analysis Tool". To the right, there are input fields for "username" and "password", a "Login" button, and links for "Forgot password" and "Register for LCAT". Below the header is a large banner image of a desert landscape with the text "Learn. Do. Share." overlaid. Underneath the banner, there is a section titled "Use the National Weather Service's Local Climate Analysis Tool (LCAT) to help you:" followed by three bullet points: "Improve professional competency and expertise in providing local information to your users", "Ensure adequate local input to CPC products that depend on local information like, for example, the Drought Monitor", and "Allow testing of local climate variables beyond temperature averages and precipitation totals, provided by CPC, such as climatology of tornado, flash floods, severe storminess, climatic extremes, etc.". To the right of this text are three vertical panels: "Learn" with links to "Data Resources", "Local Climate Analysis", "Local Climate Change", "Compositing", and "Catalogue"; "Do" with links to "Site Specific Analysis", "Climate variability impacts", "ESRL Climate Division Tool", "ESRL Reanalysis Tool", and "NDMC Drought Severity Assessment"; and "Share" with a link to "Search the database" and a lightning bolt image. At the bottom of the page, there is a footer with links for "LCAT Help | About LCAT", "Report functionality/plotting issue", "Report website issue", and "Subscribe to ListServ (name lcat_nws)", along with the copyright notice "©2013 NOAA/NWS Climate Services Division". On the left side of the footer is the USA.gov logo and the text "US Dept of Commerce National Oceanic and Atmospheric Administration National Weather Service". On the right side, there are links for "Disclaimer", "Information Quality", "Help", "Glossary", "Privacy Policy", "Freedom of Information Act (FOIA)", "About Us", and "Career Opportunities". At the bottom left of the footer, it says "Web Master's Email: w-nws.webmaster@noaa.gov".

National Centers for Environmental Prediction (NCEP)

- **Aviation Weather Center**
- **Climate Prediction Center - CPC**
 - Monitors and forecasts short-term climate fluctuations and provides information on the effects climate patterns can have on the nation
- **Environmental Modeling Center - EMC**
 - Develops and improves numerical weather, climate, hydrological and ocean prediction through a broad program in partnership with the research community
- **National Hurricane Center**
- **NCEP Central Operations - NCO**
 - Sustains and executes the operational suite of numerical analyses and forecast models and prepares NCEP products for dissemination
- **Ocean Prediction Center**
- **Space Weather Prediction center**
- **Storm Prediction Center**
- **Weather Prediction Center**

Regional Climate Services

Climate Services Program Managers – CSPMs

- Provide leadership for and manage accountability of local climate services programs
- Coordinate and collaborate with NESDIS Regional Climate Services Directors (RCSDs)
- Collect user and field requirements and training needs
- Develop and nurture partnerships within the regional climate community
- Conduct outreach activities within the regions
- Participate in or lead projects/studies that help further NOAA Climate Services within the region
- Oversee Drought Services and participate in NIDIS projects when appropriate

Local Climate Services

Climate Services Focal Points – CSFPs

- Deliver products and services to users
- Conduct local education and outreach activities
- Interpret products and data for the local community
- Gather and quality control daily climate data
- Work with partners to develop and deliver products
- Produce local climate studies
- Through CSPMs, provide support for regional climate services

Climate Data Services

The Climate Services Branch is on point to coordinate the various tools that are provided by NWS and our partners in order to provide *Timely, continuous, reliable climate records*

Within the NWS: Manage changes to the **NWS Climate Web Pages**

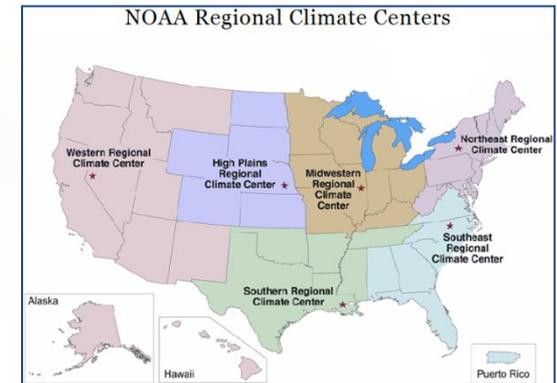
With our partners at NCEI, NERCC, SRCC & WRCC

- ✓ **WxCoder** provides a means for the NWS Cooperative Observer to provide timely, paperless reporting of observations
- ✓ **IV-ROCS** for those observers without internet access to provide their observations
- ✓ **NOWData2** provides the NWS Climate Web Pages with the most current data from the NWS Cooperative Observers
- ✓ **xmACIS2** provides the local office a robust set of data retrieval tools in order to provide localized service to their customers
- ✓ **Health of the Network** reports to help the WFO identify local



Developing Partnerships

- **NESDIS/NCEI** – data issues
- **OAR – CPO, ESRL**
 - Climate.gov/CRT; training; LCAT; RISAs; product development
- **NOS**
 - Data and expertise exchange
 - Marine Sanctuaries – IMPACT collaboration/training
 - NWS Ecological Forecasting Team
 - Climate Capacity Building Service – training
- **NMFS**
 - Climate Capacity Building Service – Tools and training
 - FY17/18 initiative
- **AASC** – joint activities; support for data management; field office support
- **RCCs** – data services, field office support

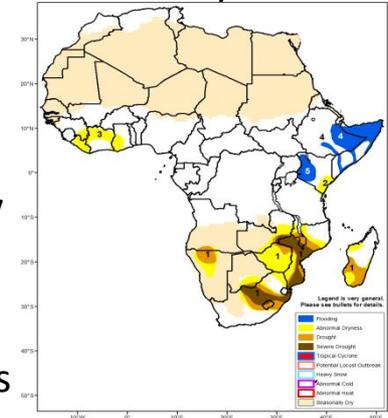


Sustained Partnerships

Linking Weather and Climate Services to Enable Health Decisions

- **Engaging health partners in Africa**
 - Enabling health forecasting and prediction in Africa through the Africa Desk
- **Pandemic Prediction and Forecasting Science and Technology Working Group**
 - Inter-agency coordination to accelerate the development of infectious disease outbreak prediction and forecasting capabilities
- **Integration of weather and climate data, health impacts, and messaging**
 - International Engagement with Environment and Climate Change Canada on extreme cold and heat services at border states
 - Developing tools for issuing heat warnings based on climatology
- **National Integrated Heat Health Information System in development with CDC**
 - Integrated system and clearinghouse of US agency resources to enhance knowledge of and improve resilience to extreme heat

Weekly Hazards Outlook for
USAID/FEWS



Environment and
Climate Change Canada



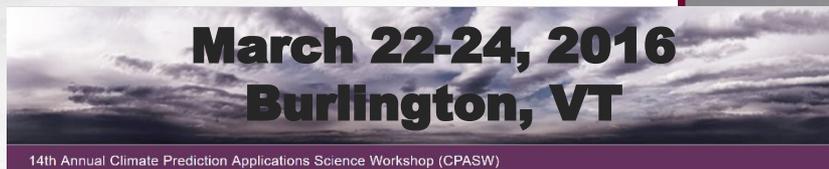
Key Annual Meetings

- **Climate Prediction Application Science Workshop**

- Key partnership with CPO, including RISAs
- Partnership with academia, state agencies

- **Climate Diagnostic and Prediction Workshop**

- Key partnership with AASC and CPO Communications
- Partnership with operational climate information producers, researchers, and users



Summary

- This meeting will be a learning experience for all of us
 - NWS organization
 - NWS budget
 - Where you all fit in
 - Science
 - Services
 - Partners
- It will help us establish a path forward for more effective climate services delivery